"BLINDNESS"

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BLINDNESS, the condition of being blind (a common Teutonic word), i.e., devoid of sight (see also Vision; and Eye: Diseases). The data furnished in various countries by the census of 1901 showed generally a decrease in blindness, due to the progress in medical science, use of antiseptics, better sanitation, control of infectious diseases, and better protection in shops and factories. Blindness is much more common in hot countries than in temperate and cold regions, but Finland and Iceland are exceptions to the general rule.* In hot countries the eyes are affected by the glaring sunlight, the dust and the dryness of the air. From statistics in Italy, France and and Belgium, localities on the coast seem to have more blind persons than those at a distance from the sea.

* There are no late returns for Iceland, but the last available statistics gave 3400 per million. A paper written in 1903 on blindness in Egypt stated that 1 in every 50 of the population was blind.

The following table gives the number of blind persons as reported in the census of each country. Unless otherwise stated, it refers to the statistics of 1900.

Country.	Total Number.	Number per Million of Population.
Austria	14,582	540
Belgium	3448	487
Canada	3279	610
Denmark	1047	427
England	25,317	778
France	27,174	698
Finland [1]	3229	1191
Germany	34,334	609
Hungary	19,377	1006
Ireland	4263	954
Italy	38,160	1175
Holland (1890)	2114	414
Norway	1879	838
Portugal	5650	1040
Sweden	3413	664
Switzerland (1895)	2107	722
Scotland	3253	727
Spain (1877)	24,608	1006
Russia		about 2000
United States (corrected census)	85,662	1125

Causes and Prevention

There are many cases of complete or partial blindness which might have been prevented, and a knowledge of the best methods of prevention and cure should be spread as widely as possible. Magnus, Bremer, Steffen and Rössler are of opinion that 40 % of the cases of blindness might have been prevented. Hayes gives 33·35 % as positively avoidable, 38·75 % possibly avoidable, and 46·27 % as a conservative estimate. Cohn regards blindness as certainly preventable in 33 %, as probably preventable in 43 %, and as quite unpreventable in only 24 %. If we take the lowest of these figures, and assume that 400 out of every 1000 blind persons might have been saved from such a calamity, we realize the importance of preventative measures. For the physiology and pathology of the eye generally, see Vision and Eye.

The great majority of these cases are due to infantile purulent ophthalmia. This arises from inoculation of the eyes with hurtful material at time of birth. If the contagious discharges are allowed to remain, violent inflammation is set up which usually ends in the loss of sight. It depends on the presence of a microbe, and the effective application of a weak solution of nitrate of silver is curative, if made in a proper manner at an early period of the case. In Germany, midwives are expressly prohibited by law from treating any affection of the eyes or eyelids of infants, however slight. On the appearance of the first symptoms, they are required to represent to the parents, or others in charge, that medical assistance is urgently needed, or, if necessary, they are themselves to report to the local authorities and the district doctor. Neglect of these regulations entails liability to punishment. Eleven of the United States of America have enacted laws requiring that, if one or both eyes of an infant should become inflamed, swollen or reddened at any time within two weeks of its birth, it shall be the duty of the midwife or nurse having charge of such infant to report in writing within six hours, to the health officer or some legally qualified physician, the fact that such inflammation, swelling or redness exists. The penalty for failure to comply is fine or imprisonment.

Ophthalmia.

The following weighty words, from a paper prepared by Dr Park Lewis, of Buffalo, N.Y., for the American Medical Association, show that laws are not sufficient to prevent evil, unless supported by strong public sentiment:—

"When an enlightened, civilized and progressive nation quietly and passively, year after year, permits a multitude of its people unnecessarily to become blind, and more especially when one-quarter of these are infants, the reason for such a startling condition of affairs demands explanation. That such is the fact, practically all reliable ophthalmologists agree.

"From a summary of carefully tabulated statistics it has been demonstrated that at least four-tenths of all existing blindness might have been avoided had proper preventative or curative measures been employed, while one-quarter of this, or one-tenth of the whole, is due to *ophthalmia neonatorum*, an infectious, preventable and almost absolutely curable disease. Perhaps this statement will take on a new meaning when it is added that there are in the state of New York alone more than 6000, and in the United States more than 50,000 blind people; of these 600 in the one state, and 5000 in the country, would have been saved from lives of darkness and unhappiness, in having lost all the joys that come through sight, and of more or less complete dependence—for no individual can be as self-sufficient without as with eyes—if a simple, safe and easily applied precautionary measure had been taken at the right time and in the right way to prevent this affliction. The following three vital facts are not questioned, but are universally accepted by those qualified to know:—

"1. The ophthalmia of infancy is an infectious germ disease.

"2. By the instillation of a silver salt in the eyes of a new-born infant the disease is prevented from developing in all but an exceedingly small number of the cases in which it would otherwise have appeared.

"3. In practically all those few exceptional cases the disease is absolutely curable, if like treatment is employed at a sufficiently early period.

"Since these facts are no longer subjects of discussion, but are universally accepted by all educated medical men, the natural inquiry follows: Why, as a common-sense proposition, are not these simple, harmless, preventive measures invariably employed, and why, in consequence of this neglect, does a nation sit quietly and indifferently by, making no attempt to prevent this enormous and needless waste of human eyes?

"The reasons are three-fold, and lie—first, with the medical profession; second, with the lay public; third, with the state.

"For the education of its blind children annually New York alone pays *per capita* at least $350, and a yearly gross sum amounting to much more than $100,000. If, as sometimes happens, the blind citizen is a dependent throughout a long life, the cost of maintenance is not less than $10,000, and the mere cost in money will be multiplied many times in that a productive factor, by reason of blindness, has been removed from the community.

"If, therefore, as an economic proposition, it were realized how vitally it concerns the state that not one child shall needlessly become blind, thereby increasing the public financial burden, there is no doubt that early and effective measures would be instituted to protect the state from this unnecessary and extravagant expenditure of public funds.

"Eleven states have passed legislative enactments requiring that the midwife shall report each case to the proper health authority, and affixing a penalty for the failure to do so. As has been intimated, however, it is not by any means always under the ministration of midwives that these cases occur, and, like all laws behind which is not a strong and well-informed public sentiment, this law is rarely enforced. A more effective method must be devised. Every physician having to do with the parturient woman, every obstetrician, every midwife, must be frequently and constantly advised of the dangers and possibilities of this disease, the necessity of prevention, and the value of early and correct treatment. They must then have placed in their hands, ready for instant use, a safe and efficient preparation, issued by the health authorities as a guarantee as to its quality and efficiency.

"An important step was taken in this direction when a resolution was passed by the House of Delegates at the annual meeting of the New York State Medical Society, requesting the various health officers of the state to include *ophthalmia neonatorum* among contagious diseases which must be reported to the local boards of health.

"The second essential, in order that the cause of infantile ophthalmia be abolished, is that a solution of the necessary silver salt be prepared under the authority of somebody capable of inspiring universal confidence, and that it be distributed by the health department of every state gratuitously to every obstetrician, physician or midwife qualified to care for the parturient woman. The nature of the solution, together with the character of the descriptive card which should accompany it, should be determined by a committee, chosen by the president of the American Medical Association, which should have among its members at least one representative ophthalmologist, one obstetrician and one sanitarian. The conclusions of this committee should be reported back to the House of Delegates, so that the preparation and its text should carry with it, on the great authority of this association, the assurance that the solution is entirely safe and necessary, and that its use should invariably be part of the toilet of every new-born child. The solution, probably silver nitrate, could be put up either by the state itself or by some trustworthy pharmacist, at an insignificant cost; its purity and sterility should be vouched for by the board of health of the state. It should be enclosed in specially prepared receptacles,

[1] Previous returns from Finland have shown a much larger number of blind persons, but these statistics were supplied by the British consul in St Petersburg from the last census.

mills and several factories, and also supplies the town, with its numerous fountains and irrigated gardens. Blida is surrounded by a wall of considerable extent, pierced by six gates, and is further defended by Fort Mimieh, crowning a steep hill on the left bank of the river. The present town, French in character, has well-built modern streets with many arcades, and numbers among its buildings several mosques and churches, extensive barracks and a large military hospital. The principal square, the place d'Armes, is surrounded by arcaded houses and shaded by trees. The centre of a fertile district, and a post on one of the main routes in the country, Blida has a flourishing trade, chiefly in oranges and flour. The orange groves contain over 50,000 trees, and in April the air for miles round is laden with the scent of the orange blossoms. In the public gardens is a group of magnificent olive trees. The products of the neighbouring cork trees and cedar groves are a source of revenue to the town. In the vicinity are the villages of Joinville and Montpensier, which owe their origin to military camps established by Marshal Valée in 1838; and on the road to Medea are the tombs of the marabout Mahommed-el-Kebir, who died in 1580, and his two sons.

Blida, *i.e. boleida*, diminutive of the Arab word *belad*, city, occupies the site of a military station in the time of the Romans, but the present town appears to date from the 16th century. A mosque was built by order of Khair-ed-din Barbarossa, and under the Turks the town was of some importance. In 1825 it was nearly destroyed by an earthquake, but was speedily rebuilt on a site about a mile distant from the ruins. It was not till 1838 that it was finally held by the French, though they had been in possession for a short time eight years before. In April 1906 it was chosen as the place of detention of Behanzin, the ex-king of Dahomey, who died in December of that year.

Blida is the chief town of a commune of the same name, having (1906) a population of 33,332.

BLIGH, WILLIAM (1754–1817), English admiral, was born of a good Cornish family in 1754. He accompanied Captain Cook in his second expedition (1772–1774) as sailing-master of the "Resolution." During the voyage, the bread-fruit, already known to Dampier, was found by them at Otaheite; and after seeing service under Lord Howe and elsewhere, "Bread-fruit Bligh," as he was nicknamed, was despatched at the end of 1787 to the Pacific in command of H.M.S. "Bounty," for the purpose of introducing it into the West Indies from the South Sea Islands. Bligh sailed from Otaheite, after remaining there about six months; but, when near the Friendly Islands, a mutiny (April 28, 1789) broke out on board the "Bounty," headed by Fletcher Christian, the master's mate, and Bligh, with eighteen others, was set adrift in the launch. The mutineers themselves settled on Pitcairn Island (*q.v.*), but some of them were afterwards captured, brought to England and in three cases executed. This mutiny, which forms the subject of Byron's *Island*, did not arise so much from tyranny on the part of Bligh as from attachments contracted between the seamen and the women of Otaheite. After suffering severely from hunger, thirst and storms, Bligh and his companions landed at Timor in the East Indies, having performed a voyage of about 4000 m. in an open boat. Bligh returned to England in 1790, and he was soon afterwards appointed to the "Providence," in which he effected the purpose of his former appointment by introducing the bread-fruit tree into the West India Islands. He showed great courage at the mutiny of the Nore in 1797, and in the same year took part in the battle of Camperdown, where Admiral Duncan defeated the Dutch under De Winter. In 1801 he commanded the "Glatton" (54) at the battle of Copenhagen, and received the personal commendations of Nelson. In 1805 he was appointed "captain general and governor of New South Wales." As he made himself intensely unpopular by the harsh exercise of authority, he was deposed in January 1808 by a mutiny headed by Major George Johnston of the 102nd foot, and was imprisoned by the mutineers till 1810. He returned to England in 1811, was promoted to rear-admiral in that year, and to vice-admiral in 1814. Major Johnston was tried by court martial at Chelsea in 1811, and was dismissed the service. Bligh, who was an active, persevering and courageous officer, died in London in 1817.

BLIND, MATHILDE (1841–1896), English author, was born at Mannheim on the 21st of March 1841. Her father was a banker named Cohen, but she took the name of Blind after her step-father, the political writer, Karl Blind (1826–1907), one of the exiled leaders of the Baden insurrection in 1848–1849, and an ardent supporter of the various 19th-century movements for the freedom and autonomy of struggling nationalities. The family was compelled to take refuge in England, where Mathilde devoted herself to literature and to the higher education of women. She produced also three long poems, "The Prophecy of St Oran" (1881), "The Heather on Fire" (1886), an indignant protest against the evictions in the Highlands, and "The Ascent of Man" (1888), which was to be the epic of the theory of evolution. She wrote biographies of George Eliot (1883) and Madame Roland (1886), and translated D.F. Strauss's *The Old Faith and the New* (1873–1874) and the *Memoirs of Marie Bashkirtseff* (1890). She died on the 26th of November 1896, bequeathing her property to Newnham College, Cambridge.

A complete edition of her poems was edited by Mr Arthur Symons in 1900, with a biographical introduction by Dr Richard Garnett.

BLIND HOOKEY, a game of chance, played with a full pack of cards. The deal, which is an advantage, is decided as at whist, the cards being shuffled and cut as at whist. The dealer gives a parcel of cards to each player including himself. Each player puts the amount of his stake on his cards, which he must not look at. The dealer has to take all bets. He then turns up his parcel, exposing the bottom card. Each player in turn does the same, winning or losing according as his cards are higher or lower than the dealer's. Ties pay the dealer. The cards rank as at whist. The suits are of no importance, the cards taking precedence according to their face-value.

BLINDING, a form of punishment anciently common in many lands, being inflicted on thieves, adulterers, perjurers and other criminals. The inhabitants of Apollonia (Illyria) are said to have inflicted this penalty on their "watch" when found asleep at their posts. It was resorted to by the Roman emperors in their persecutions of the Christians. The method of destroying the sight varied. Sometimes a mixture of lime and vinegar, or barely scalding vinegar alone, was poured into the eyes. Sometimes a rope was twisted round the victim's head till the eyes started out of their sockets. In the middle ages the punishment seems to have been changed from total blindness to a permanent injury to the eyes, amounting, however, almost to blindness, produced by holding a red-hot iron dish or basin before the face. Under the forest laws of the Norman kings of England blinding was a common penalty. Shakespeare makes King John order his nephew Arthur's eyes to be burnt out.

BLINDMAN'S-BUFF (from an O. Fr. word, *buffe*, a blow, especially a blow on the cheek), a game in which one player is blindfolded and made to catch and identify one of the others, who in sport push him about and "buffet" him.

BLINDNESS, the condition of being blind (a common Teutonic word), *i.e.* devoid of sight (see also VISION; and EYE: *Diseases*). The data furnished in various countries by the census of 1901 showed generally a decrease in blindness, due to the progress in medical science, use of antiseptics, better sanitation, control of infectious diseases, and better protection in shops and factories. Blindness is much more common in hot countries than in temperate and cold regions, but Finland and Iceland are exceptions to the general rule.[1] In hot countries the eyes are affected by the glaring sunlight, the dust and the dryness of the air. From statistics in Italy, France and Belgium, localities on the coast seem to have more blind persons than those at a distance from the sea.

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each containing a special quantity, and so arranged that it may be used drop by drop. These, properly enclosed, accompanied by a brief lucid explanation of the danger of the disease, the necessity of this germicide, the method of its employment, and the right subsequent care of the eyes, should be sent to the obstetrician on the receipt of each birth certificate.

"I have said that responsibility for the indifference that is annually resulting in such frightful disaster lies primarily with the state, the public and the medical profession.

"The state is already aroused to the necessity of taking effective measures to wipe out this controllable plague. Bills have been introduced in the legislature of Massachusetts and of New York, providing for the appointment of commissions for the blind, one of whose duties will be to study the causes of unnecessary blindness and to suggest preventative measures."

Trachoma.

One of the most common diseases of the eye is trachoma, often called "granular lids," because the inner surface of the lid seems to be covered with little granulations. The disease sometimes lasts for years without causing blindness, though it gives rise to great irritation. It is generally attended by a discharge, which is highly contagious, producing the same disease if it gets into other eyes. Want of cleanliness is one of the most important factors in the propagation of trachoma, hence its great prevalence in Oriental countries. Trachoma is very prevalent in Egypt, where those suffering from total or partial blindness are said to amount to 10% of the population. During Napoleon's Egyptian campaign, nearly every soldier, out of an army of 32,000 men, was affected. During the following twenty years the disease spread through almost all European armies. In the Belgian army, there was one trachomatous soldier out of every five, and up to 1834 no less than 4000 soldiers had lost both eyes and 10,000 one eye. It is a disease which is very common in workhouse schools, orphan asylums and similar establishments. Unlike ophthalmia of new-born children, it is difficult to cure, and a total separation of the diseased from the healthy children should be effected.

Sympathetic inflammation.

About one-half of those who are blinded by injuries lose the second eye by sympathetic ophthalmia. It is a constant source of danger to those who retain an eye blinded by injury. Blindness from this cause can be prevented by the removal of the injured eye, but unfortunately the proposal often meets with opposition from the patient.

Glaucoma.

Glaucoma is a disease which almost invariably leads to total blindness; but in most cases it can be arrested by a simple operation if the case is seen sufficiently early.

Short-sight.

Myopia, or "short-sight," makes itself apparent in children between the ages of seven and nine. Neglect of a year or two may do serious mischief. Short-sight, when not inherited, is produced by looking intently and continuously at near objects. Children should be encouraged to describe objects at a distance, with which they are unacquainted, and parents should choose out-door occupations and amusements for children who show a tendency to short-sightedness.

A report was issued in 1906, by the school board of Glasgow, as to an investigation by Dr H. Wright Thomas, ophthalmic surgeon, regarding the eyesight of school children, which includes the following passage. Dr Wright Thomas states that the teachers tested the visual acuteness of 52,493 children, and found 18,565, or 35%, to be below what is regarded as the normal standard. He examined the 18,565 defectives by retinoscopy, and found that 11,209, or 21% of the whole, had ocular defects. The proportion of these cases was highest in the poor and closely-built districts and in old schools, and was lowest in the better-class schools and those near the outskirts of the city. Defective vision, apart from ocular defect, seems to be due partly to want of training of the eyes for distant objects and partly to exhaustion of the eyes, which is easily induced when work is carried on in bad light, or the nutrition of the children is defective from bad feeding and unhealthy surroundings. Regarding training of the eyes for distant objects, much might be done in the infant department by the total abolition of sewing, which is definitely hurtful to such young eyes, and the substitution of competitive games involving the recognition of small objects at a distance of 20 ft. or more. An annual testing by the teachers, followed by medical inspection of the children found defective, would soon cause all existing defects to be corrected, and would lead to the detection of those which develop during school life.

History of Institutions

Although there is a record of a hospital established by St Basil at Caesarea, Cappadocia, in the 4th century, a refuge by the hermit St Lymnee (d. *c.* 455) at Syr, Syria, in the 5th century, and an institution by St Bertrand, bishop of Le Mans, in the 7th century, the first public effort to benefit the blind was the founding of a hospital at Paris, in 1260, by Louis IX., for 300 blind persons. The common legend is that he founded it as an asylum for 300 of his soldiers who had become blinded in the crusade in Egypt, but the statutes of the founder are preserved, and no mention is made of crusaders. This Hospice des Quinze-Vingts, increased by subsequent additions to its funds, still assists the adult blind of France. The pensioners are divided into two classes—those who are inmates of the hospital (300), and those who receive pensions in the form of out-door relief. All appointments to inmates or pensions are vested in the minister of the Interior, and applicants must be of French nationality, totally blind and not less than forty years of age.

From the time of St Louis to the 18th century, there are records of isolated cases of blind persons who were educated, and of efforts to devise tangible apparatus to assist them.

Girolamo Cardan, the 16th-century Italian physician, conceived the idea that the blind could be taught to read and write by means of touch. About 1517 Francesco Lucas in Spain, and Rampazetto in Italy, made use of large letters cut in wood for instructing the blind. In 1646 a book, on the condition of the blind, was written by an Italian, and published in Italian and French, under the title of *L'Aveugle affligé et consolé*. In 1670 a book was written on the instruction of the blind by Lana Terzi, the Jesuit. In 1676 Jacques Bernoulli, the Swiss savant, taught a blind girl to read, but the means of her instruction were not made known. In 1749 D. Diderot wrote his *Lettre sur les aveugles à l'usage de ceux qui voient*, to show how far the intellectual and moral nature of man is modified by blindness. Dr S. G. Howe, who many years after translated and printed the "Letter" in embossed type, characterizes it as abounding with errors of fact and inference, but also with beauties and suggestions. The heterodox speculations contained in his "Letter on the Blind" caused Diderot to be imprisoned three months in the Bastille. He was released because his services were required for the forthcoming *Encyclopaedia*. Rousseau visited Diderot in prison, and is reported to have suggested a system of embossed printing. J. Locke, G. W. Leibnitz, Molineau and others discussed the effect of blindness on the human mind. In Germany, Weissembourg had used signs in relief and taught Mlle Paradis.

Prior to the 18th century, blind beggars existed in such numbers that they struggled for standing room in positions favourable for asking alms. Their very affliction led to their being used as spectacles for the amusement of the populace. The degraded state of the masses of the blind in France attracted the attention of Valentin Haüy. In 1771, at the annual fair of St Ovid, in Paris, an innkeeper had a group of blind men attired in a ridiculous manner, decorated with peacock tails, asses' ears, and pasteboard spectacles without glasses, in which condition they gave a burlesque concert, for the profit of their employer. This sad scene was repeated day after day, and greeted with loud laughter by the gaping crowds. Among those who gazed at this outrage to humanity was the philanthropist Valentin Haüy, who left the disgraceful scene full of sorrow. "Yes," he said to himself, "I will substitute truth for this mocking parody. I will make the blind to read, and they shall be enabled to execute harmonious music." Haüy collected all the information he could gain respecting the blind, and began teaching a blind boy who had gained his living by begging at a church

door. Encouraged by the success of his pupil, Haüy collected other blind persons, and in 1785 founded in Paris the first school for the blind (the Institution Nationale des Jeunes Aveugles), and commenced the first printing in raised characters. In 1786, before Louis XVI. and his court at Versailles, he exhibited the attainments of his pupils in reading, writing, arithmetic, geography and music, and in the same year published an account of his methods, entitled *Essai sur l'éducation des aveugles*. As the novelty wore off, contributions almost came to an end, and the Blind School must have ceased to exist, had it not been taken, in 1791, under the protection of the state.

The emperor of Russia, and later the dowager empress, having learned of Haüy's work, invited him to visit St Petersburg for the purpose of establishing a similar institution in the Russian capital. On his journey Haüy was invited by the king of Prussia to Charlottenburg. He took part in the deliberations of the Academy of Sciences in Berlin, and as a result a school was founded there.

Edward Rushton, a blind man, was the projector of the first institution for the blind in England—the School for the Indigent Blind, Liverpool. In 1790 Rushton suggested to the literary and philosophical society of which he was a member, the establishment of a benefit club for the indigent blind. The idea was communicated to his friend, J. Christie, a blind musician, and the latter thought the scheme should also include the instruction of young blind persons. They circulated letters amongst individuals who would be likely to give their assistance, and the Rev. Henry Dannett warmly advocated the undertaking. It was mainly due to his co-operation and zeal that Messrs Rushton and Christie's plan was carried out, and the Liverpool asylum was opened in 1791. Thomas Blacklock of Edinburgh, a blind poet and scholar, translated Haüy's work on the *Education of the Blind*. He interested Mr David Millar, a blind gentleman, the Rev. David Johnston and others in the subject, and after Blacklock's death the Edinburgh Asylum for the Relief of the Indigent and Industrious Blind was established (1793). Institutions were established in the United Kingdom in the following order:—

School for the Indigent Blind, Liverpool	1791
Royal Blind Asylum, Edinburgh	1793
Bristol Asylum	1793
School for the Indigent Blind, Southwark (now removed to Leatherhead)	1799
Norwich Asylum and School	1805
Richmond Asylum, Dublin	1810
Aberdeen Asylum	1812
Molyneux Asylum, Dublin	1815
Glasgow Asylum and School	1827
Belfast School	1831
Wilberforce School, York	1833
Limerick Asylum	1834
London Society for Teaching the Blind to Read, St John's Wood, N.	1838
Royal Victoria School for the Blind, Newcastle-on-Tyne	1838
West of England Institute for the Blind, Exeter	1838
Henshaw's Blind Asylum, Manchester	1839
County and City of Cork Asylum	1840
Catholic Asylum, Liverpool	1841
Brighton Asylum	1842
Midland Institute for the Blind, Nottingham	1843
General Institute for the Blind, Birmingham	1848
Macan Asylum, Armagh	1854
St Joseph's Asylum, Dublin	1858
St Mary's Asylum, Dublin	1858
Institute for the Blind, Devonport	1860
South Devon and Cornwall Institute for the Blind, Plymouth	1860
School for the Blind, Southsea	1864
Institute for the Blind, Dundee	1865
South Wales Institute for the Blind, Swansea	1865
School for the Blind, Leeds	1866
College for the Sons of Gentlemen, Worcester	1866
Northern Counties Institute for the Blind, Inverness	1866
Royal Normal College and Academy of Music for the Blind, Upper Norwood	1872
School for the Blind, Sheffield	1879
Barclay Home and School for Blind Girls, Brighton	1893
Homes for Blind Children, Preston	1895
North Stafford School, Stoke-on-Trent	1897

Many of the early institutions were asylums, and to the present day schools for the blind are regarded by the public as asylums rather than as educational establishments. With nearly all these schools workshops were connected. In 1856 Miss Gilbert, the blind daughter of the bishop of Chichester, established a workshop in Berners Street, London, and since that date workshops have been started in many of the provincial towns.

After the beginning of the 19th century, institutions for the blind were established in various parts of Europe. The institution at Vienna was founded in 1804 by Dr W. Klein, a blind man, and he remained at its head for fifty years. That of Berlin was established in 1806, Amsterdam, Prague and Dresden in 1808, Copenhagen in 1811. There are more than 150 on the European continent, most of them receiving aid from the government, and being under government supervision.

The first school for the blind in the United States was founded in Boston, Mass., chiefly through the efforts of Dr John D. Fisher, a young physician who visited the French school. It was incorporated in 1829, and in honour of T. H. Perkins (1764–1854) who gave his mansion to the institution was named the Perkins Institution and Massachusetts Asylum (now School) for the Blind. Aid was granted by the state from the beginning. In 1831 Dr Samuel G. Howe (*q.v.*) was appointed director, and held that position for nearly forty-four years, being succeeded by his son-in-law Michael Anagnos (d. 1906), who established a kindergarten for the blind at Jamaica Plain, in connexion with the Perkins Institution. Dr Howe was interested in many charitable and sociological movements, but his life-work was on behalf of the blind. One of his most notable achievements was the education of Laura Bridgman (*q.v.*) who was deaf, dumb and blind, and this has since led to the education of Helen Keller and other blind deaf-mutes. The New York Institution was incorporated in 1831, and the Pennsylvania Institution was founded at Philadelphia by the Society of Friends in 1833. The Ohio was founded at Columbus in 1837, Virginia at Staunton in 1839, Kentucky at Louisville in 1842, Tennessee at Nashville in 1844, and now every state in the Union makes provision for the education of the blind.

Statistics

In England and Wales the total number of persons returned in 1901 as afflicted with blindness was 25,317, being in the proportion of 778 per million living, or 1 blind person in every 1285 of the population. The following table shows that the proportion of blind persons to population has diminished at each successive enumeration since 1851, in which year particulars of those afflicted in this manner were ascertained for the first time. It will, however, be noted that, although the decrease in the proportion of blind in the latest intercensal period was still considerable, yet the rate of decrease which had obtained between 1871 and 1891 was not maintained. *England and Wales.*

Year.	Number of Blind.	Blind per Million of the Population.	Persons Living to one Blind Person.
1851	18,306	1021	979
1861	19,352	964	1037
1871	21,590	951	1052
1881	22,832	879	1138
1891	23,467	809	1236
1901	25,317	778	1285

The following table, which gives the proportions of blind per million living at the earlier age-groups, shows that in the decennium 1891–1901, as also in recent previous intercensal periods, there was a decrease in the proportion of blind children in England and Wales generally; it thus lends support to the contention, in the *General Report* for 1891, that the decrease was due either to the lesser prevalence, or to the more efficient treatment, of purulent ophthalmia and other infantile maladies which may result in blindness.

Age-Period.	1851	1861	1871	1881	1891	1901
Under 5 years	198	196	185	166	155	129
5–10	297	256	259	288	188	192
10–15	365	366	359		290	323
15–20	416	415	404	388	370	329
20–25	481	443	451	422	385	359
Total under 25	339	322	317	298	269	261

In 1886 a royal commission on the blind, deaf and dumb was appointed by the government, and, after taking much valuable evidence, issued an exhaustive and instructive report. Following on the practical recommendations submitted by this commission, the Elementary Education (Blind and Deaf Children) Act 1893, was passed, under which the education of the blind became for the first time compulsory. In terms of this statute, the school authorities were made responsible for the provision of suitable elementary education for blind children up to sixteen years of age, and grants of £3, 3s. for elementary subjects, and of £2, 2s. for industrial training, were contributed by the state towards the cost of educating children in schools certified as efficient within the meaning of the Elementary Education Act 1876. The principal aim of the Education Act of 1893 was to supply education in some useful profession or trade which will enable the blind to earn their livelihood and to become useful citizens; but the weak spot was that no provision was made therein for the completion of their education and industrial training after the age of sixteen.

In England and Wales, in 1907, there were twenty-four resident schools and forty-three workshops for the blind. In many of the large towns, day classes for the education of blind children have been established by local education authorities. There are forty-six home teaching societies, who send teachers to visit the blind in their homes, to teach adults who wish to learn to read, to act as colporteurs, to lend and exchange useful books, and to act as Scripture readers to those who are aged and infirm. All the home teaching societies for the blind and many public libraries lend embossed books. The public library at Oxford has nearly 400 volumes of classical works for the use of university students.

A society was instituted in 1847 by Dr W. Moon for stereotyping and embossing the Scriptures and other books in "Moon" type. The type has been adapted to over 400 languages and dialects. After Dr Moon's death in 1884 the work was carried on by his daughter, Miss Adelaide Moon, and the books are much used by the adult blind.

In 1868 Dr T. R. Armitage, being aware of the great improvements which had been made in the education of the blind in other countries, founded the British and Foreign Blind Association. This association was formed for the purpose of promoting the education and employment of the blind, by ascertaining what had been done in these respects in various countries, by endeavouring to supply deficiencies where these were found to exist, and by attempting to bring about greater harmony of action between the different existing schools and institutions. It gave a new impetus to the education and training of the blind in the United Kingdom. At that time their education was in a state of chaos. The Bible, or a great part of it, had been printed in five different systems. The founders took as an axiom that the relative merits of the various methods of education through the sense of touch should be decided by those and those only who have to rely on this sense. The council, who were all totally or partially blind, spent two years in comparing the different systems of embossed print. In 1869 and 1870 Dr Armitage corresponded with Dr J. R. Russ in regard to the New York Point. No trouble was spared to arrive at a right conclusion. The Braille system was finally adopted, and the association at once became a centre for supplying frames for writing Braille, printed books, maps, music and other educational apparatus for the blind. All books printed by the association are printed from stereotyped plates embossed by blind copyists. About 3000 separate works, varying in length from 1 to 12 volumes, have been copied by hand to meet the requirements of public libraries and individuals. About 700 ladies, who give their services, make the first Braille copy of these books, and they are recopied by blind scribes, chiefly women and girls, who are paid for their work.

The National Lending library, London, was founded in 1882. It has over 5500 volumes in Braille and other types. Books are forwarded to all parts of the United Kingdom.

There are fourteen magazines published in embossed type in the United Kingdom.

There are thirty-six pension societies—the principal are Hetherington's, Day's, the Clothworkers', the Cordwainers', the National Blind Relief Society, Royal Blind Pension Society and Indigent Blind Visiting Society.

The Gardner Trust administers the income of £300,000 left by Henry Gardner in 1879. The income is used for instructing the blind in the profession of music, in suitable trades, handicrafts and professions other than music, for pensions, and free grants to institutions and individuals for special purposes.

Scotland.

According to the census of 1901, Scotland had 3253 (or 727 per million) blind persons, as against 2797 in 1891, but in a paper read at the conference in Edinburgh, 1906, the superintendent of the Glasgow Mission to the Out-door Blind stated that there were 758 employed or being educated in institutions, and 3238 known as "out-door blind," making a total of 3996. There are in Scotland ten missions, so distributed as to cover the whole country, and regular visits are made as far north as the Orkney and Shetland Islands. In carrying on the work, there are twenty-four paid missionaries or teachers and a large number of voluntary helpers. These societies originated in a desire to teach the blind to read in their own homes, and to provide them with the Scriptures and other religious books, but the social, intellectual and temporal needs of the blind also receive a large share of attention. These teachers afford the best means of circulating embossed literature, therefore the library committee of the Glasgow corporation has agreed to purchase books and place them in the mission library instead of in the public library. As the institutions provide for only a small number of the blind, strenuous efforts are made by the committee and teachers of missions to find some employment for the many adults who come under their care.

In Glasgow, a ladies' auxiliary furnishes work for 150 knitters, and takes the responsibility of disposing of their work. In Scotland there are five schools for the young blind, and in connexion with each is a workshop for adults. In Edinburgh the school is at West Craigmillar, and the workshop in the city, but both are under the same board of directors.

Ireland.

According to the census of 1901, there were 4253 totally blind persons in Ireland, a proportion of 954 per million, as against 1135 in 1891. Of these, 2430 were over 60 years of age and 11 over 100. These figures do not include the partially blind, who numbered 1217. The fact that so many aged blind persons are to be found in Ireland is doubtless due to an ophthalmic epidemic which occurred during the Irish famine. There are twelve institutions, a home mission and home teaching society; nine of these institutions are asylums, that system having been largely adopted in Ireland. The scarcity of manufacturing industries, except in a few northern counties, entails a lack of work suited to the blind. The Elementary Education Act (Blind and Deaf) does not extend to Ireland.

The following table gives the number of blind in age-groups in 1901:—

Age-Period.	Number.	Age-Period.	Number.
Under 5 years	10	50–55	392
5–10	38	55–60	314
10–15	64	60–65	617
15–20	73	65–70	382
20–25	95	70–75	540
25–30	116	75–80	306
30–35	146	80–85	372
35–40	146	85–90	118
40–45	205	95 and upwards	95
45–50	224		

British Colonies.

In the Dominion of Canada, South Africa, the states of the Australian Commonwealth and New Zealand, provision is made by the government for the education of the young blind, and in some cases for training the adults in handicrafts. Embossed literature is carried free of expense, and on the Victorian railways no charge is made for the guide who accompanies a blind person.

The following were the census returns for 1901:—

Victoria	1082	Tasmania	173
New South Wales	884	New Zealand	274 (1891)
South Australia	315	Natal	68
Queensland	209	Cape Colony	2802 (1904)
West Australia	121	Canada	3279

In Australia there are institutions for the blind at Melbourne, Sydney, Adelaide, Brighton, Brisbane and Maylands near Perth. In New Zealand the institution is at Auckland.

In Cape Colony, between 1875 and 1891, there was an extraordinary increase in blindness, but between 1891 and 1904 the rate per 10,000 has decreased 23·78 %. There is an institution at Worcester for deaf-mutes and blind, founded in 1881. It is supported by a government grant, fees and subscription.

Schools for the blind were established by the Dominion government at Brantford, Ontario (1871), and Halifax, Nova Scotia (1867).

In Montreal there are two private institutions, the M'Kay Institute for Protestant Deaf-Mutes and Blind, and a school for Roman Catholic children under the charge of the Sisters of Charity.

United States.

In the United States the education of the blind is not regarded as a charity, but forms part of the educational system of the country, and is carried on at the public expense. According to the *Annual Report* of the Commissioner of Education for 1908, there were 40 state schools, with 4340 pupils. The value of apparatus, grounds and buildings was $9,201,161. For salaries and other expenditure, the aggregate was $1,460,732. The United States government appropriates $10,000 annually for printing embossed books, which are distributed among the different state schools for the blind. Beside these state schools, there are workshops for the blind subsidized by the state government or the municipality. Commissions composed of able men have recently been appointed in several of the states to take charge of the affairs of the blind from infancy to old age. The exhaustive summary of the 12th census enables these commissions to communicate with every blind person in their respective states.

At the 12th census a change was made in the plan for securing the returns, and the work of the enumerators was restricted to a brief preliminary return, showing only the name, sex, age, post office address, and nature of the existing defects in all persons alleged to be blind or deaf. Dr Alexander Graham Bell, of Washington, D.C., was appointed expert special agent of the census office for the preparation of a report on the deaf and blind. He was empowered to conduct in his own name a correspondence relating to this branch of the census inquiry. A circular containing eighteen questions was addressed to every blind person given in the census, and from the data contained in the replies the following tables (I., II., III., IV.) have been compiled.

TABLE I.—*The Blind, by Degree of Blindness and Sex.*

Sex.	The Blind.	The Totally Blind.	The Partially Blind.
Number—			
Total	64,763	35,645	29,118
Male	37,054	20,144	16,910
Female	27,709	15,501	12,208
Per cent distribution—			
Total	100·0	100·0	100·0
Male	57·2	56·5	58·1
Female	42·8	43·5	41·9
Number per 1,000,000 population of same sex—			
Both sexes	852	469	383
Male	955	519	436
Female	745	417	328

The enumerators reported a total of 101,123 persons alleged to be blind as defined in the instructions contained in the schedules, but this number was greatly reduced as a result of the correspondence directly with the individuals, 8842 reporting that the alleged defect did not exist, and 6544 that they were blind only in one eye but were able to see with the other, and hence did not come within the scope of the inquiry. No replies were received in 19,884 cases in which personal schedules were sent, although repeated inquiries were made; consequently these cases were dropped. In 380 cases the personal schedules returned were too incomplete for use, and in 75 cases duplication was discovered. The number of cases remaining for statistical treatment, after making the eliminations and corrections, was 64,763, representing 35,645 totally blind, and 29,118 partially blind. This number, however, can be considered only as the minimum, as an unknown proportion of the blind were not located by the enumerators, and doubtless a considerable porportion of the 19,884 persons who failed to return the personal schedules should be included in the total.

TABLE II.—*The Blind, by Degree of Blindness, Age-Periods, Colour and Nativity.*

Degree of Blindness and Age-Period.	All Classes.	White.			Coloured.
		Total.	Native.	Foreign-born.	
Number—					
The blind	64,763	56,535	45,479	10,694	8228
Under 20 years	8,308	7,252	6,937	231	1056
20 years and over	56,165	49,067	38,388	10,420	7098
Age unknown	290	216	154	43	74
The totally blind	35,645	30,359	23,636	6,511	5286
Under 20 years	4,123	3,543	3,377	129	580
20 years and over	31,363	26,704	20,179	6,363	4659
Age unknown	159	112	80	19	47
The partially blind	29,118	26,176	21,843	4,183	2942
Under 20 years	4,185	3,709	3,560	102	476
20 years and over	24,802	22,363	18,209	4,057	2439
Age unknown	131	104	74	24	27
Number per 1,000,000 population of same age—					
The blind	852	846	804	1,047	896
Under 20 years	247	250	248	215	229
20 years and over	1,334	1,305	1,348	1,143	1574
The totally blind	469	454	418	637	576
Under 20 years	123	122	121	120	126
20 years and over	745	710	708	698	1033
The partially blind	383	392	386	410	320
Under 20 years	124	128	127	95	103
20 years and over	589	595	639	445	541

"Blindness, either total or partial, is so largely a defect of the aged, and occurs with so much greater frequency as the age advances and the population diminishes, that in any comparison of the proportion of the blind in the general population of different classes, such as native and foreign-born whites, or white and coloured, the age distribution of the population of each class should be constantly borne in mind. The differences in this respect account for many of the differences in the gross ratios, and it is only when ratios are compared for classes of population of identical ages that their relative liability to blindness can be properly inferred."

Table II. shows the classification, by degree of blindness, of the blind under twenty years of age, twenty years of age and over, and of unknown age, with respect to colour and nativity, with the number at the specified ages per million of population in the same age-group.

The relationship or consanguinity of parents of the 64,763 blind was reported in 56,507 cases, in 2527 (or 4·5 %) of which the parents were related as cousins.

In 57,726 cases the inquiry as to the existence of blind relatives was answered; 10,967 (or 19%) of this number reported that they had blind relatives.

Of the 2527 blind persons whose parents were cousins, 993 (or 39·3%) had blind relatives,—844 having blind brothers, sisters or ancestors, and 149 having blind collateral relatives or descendants.

Of the 53,980 blind whose parents were not related, 9490 (or 17.6 %) had blind relatives, 7395 having blind brothers, sisters or ancestors, and 2095 having blind collateral relatives or descendants.

It was found that, of the 2527 blind whose parents were cousins, 632 (or 25%) were congenitally blind, of whom 350 (or 55·4%) had also blind relatives of the classes specified; while, among the 53,980 whose parents were not so related, the number of congenitally blind was 3666 (or but 6·8%), of whom only 1023 (or 27·9%) had blind relatives.

In 1883 the number of blind in France was estimated at 32,056, the total population of the country being 38,000,000; 2548 of the

blind were under, and 29,508 above, 21 years of age; of the former 857 were receiving instruction in 21 schools supported by the state, by the city of Paris, by some of the departments, and by some religious bodies. The four Parisian institutions are the Institution Nationale des Jeunes Aveugles, the École Braille (founded in 1883), the Établissement des Sœurs Aveugles de St Paul (founded in 1852), and that of the Frères de Saint Jean de Dieu (founded in 1875).

France.

TABLE III.— *The Blind, by Degree of Blindness and Age-Periods.*

Age-Period.	The Blind.	The Totally Blind.	The Partially Blind.
Number—			
All ages	64,763	35,645	29,118
Under 10 years	2,307	1,262	1,045
10–19 ,,	6,001	2,861	3,140
20–29 ,,	4,861	2,851	2,010
30–39 ,,	5,024	3,077	1,947
40–49 ,,	6,504	3,778	2,726
50–59 ,,	8,530	4,791	3,739
60–69 ,,	10,507	5,835	4,672
70–79 ,,	11,421	6,132	5,289
80–89 ,,	7,490	3,885	3,605
90–99 ,,	1,596	851	745
100 years and over	232	163	69
Age unknown	290	159	131
Number per 1,000,000 population of same age—			
All ages	852	469	383
Under 10 years	128	70	58
10–19 ,,	384	183	201
20–29 ,,	351	206	145
30–39 ,,	478	293	185
40–49 ,,	845	491	354
50–59 ,,	1,655	930	725
60–69 ,,	3,396	1,886	1,510
70–79 ,,	8,136	4,368	3,768
80–89 ,,	22,022	11,423	10,599
90–99 ,,	52,746	28,125	24,621
100 years and over	66,210	46,518	19,692
Age unknown	1,446	793	653

The number of the blind in Germany was about 39,000, or 870 per million in 1885. The number of institutions was 28, nearly all being educational, with a total of 2139 pupils. All these institutions, except two which are supported entirely by private munificence, are largely assisted by the state, the communes or the provinces. Seventeen of them derive their entire requirements from the state, so that they are quite independent of private charity, while the remainder are only supplemented from public funds so far as the private contributions fall short of the expenses.

Germany.

The following extracts were made from an official communication from Hofrath Büttner, director of the institution for the blind in Dresden, to the royal commission, concerning the care and supervision (*Fürsorge*) of the blind after their discharge from the institution:—

Saxony system.

"When twenty years of age, the blind are usually discharged from the institution. Long experience has taught us that the care and supervision of the blind after their discharge from the institution are quite as important as their education and training in the institution. It would, in our opinion, be unjust to remove them from their sad surroundings, educate and accustom them to higher wants, and then allow them to sink backward into their former miserable way of life. After much deliberation it was decided to remain in connexion with the discharged blind, to visit them in their places of abode, to learn their wants, to study the difficulties which they experienced in supporting themselves independently, and, as far as possible, to remove their grievances. Director Georgi began this work in 1843. Director Reinhard continued it from 1867 to 1879, and the present director has followed the same path. With the knowledge of these difficulties the *Fürsorge* (care) for discharged blind steadily advanced, and has won the confidence of the Saxon people. It was decided that, on the discharge of the blind person, the director should select a trustworthy person, residing in his future place of abode, to give him advice and practical help, to protect him from imposition, and to keep up communication with the director. If this guardian is unable to advise or help, he then writes to the director, who, if necessary, comes to the place, and this is all the easier as he travels free on all railways in Saxony. The result of these visits, as well as all communications from the guardian, the letters from the blind person, and every document relating to him, are entered in a register kept at the institution. These guardians are respectable, benevolent, practical men, capable of procuring custom for their wards. But there was no doubt that, in spite of these arrangements, the discharged blind were unable to support themselves without the assistance of capital, whether in money or outfit. The blind man can do as good work as the man who can see; but as a rule he does not work so quickly, and if the man who is not blind has to use every exertion to support himself and his family, the blind man to do the same requires some special help, without which he will either not be able to compete, or will have to lead a life of great privation.

"The first difficulty when a blind pupil is starting in life is to provide himself with the necessary tools and material. These the institution supplies to him, and continues through life to afford him moral and material help; and by this means the greater part of the blind are enabled to save money for sickness and old age. Those who cannot return to their relations cannot at once meet all their expenses, and the weak and old need special help. A part of the money for their board and lodging is paid for those who have to be settled in other places on account of the death or untrustworthiness of their relatives.

"The fund for the discharged blind is administered by the director of the institution. The number of those assisted amounts at present to about 400, who live respectably in all parts of Saxony, are almost self-supporting, and feel themselves free men. For, just as a son does not feel galled by a gift from his father, so they are not ashamed to receive assistance from their second paternal home, the institution."

The number of the blind in Holland, according to the census of the 1st of December 1869, was 1593, or one in every 2247 of the general population. The Protestants and Roman Catholics were about equally balanced. No cognizance was taken of the blind in the census of 1879. There is only one blind institution, that of Amsterdam, with 60 pupils, with a preparatory school at Benuchem (with 20 pupils) and an asylum for adults with 52 inmates (unmarried). Besides these, there are workshops at Amsterdam, Rotterdam, the Hague, Utrecht and Middelburg.

Holland.

According to the census of 1870, there were in Denmark 1249 blind (577 males and 672 females), or one blind for every 1428 persons. One institution has been established by government, *i.e.* the Royal Institution for the Blind, at Copenhagen; 100 children, aged 10 and upwards, are here educated. There is a preparatory school for blind children under 10 years of age, and an asylum for blind females, most of whom are former pupils of the royal school. An association for promoting the self-dependence of the blind assists not only former pupils of the school but every blind man or woman willing and able to work.

Denmark.

The number of blind persons in Sweden, according to the census of December 1880, was 3723, being at the rate of one blind person for every 1226 of the general population. At the beginning of the year 1879, the instruction of the blind in Sweden was completely separated from that of the deaf and dumb, on the grounds that it hindered the intellectual development of the blind—a conclusion which experience shows to be tolerably correct. Since

Sweden.

TABLE IV.—*The Blind, by Consanguinity of Parents, Degree of Blindness, and Blind Relatives of Other Classes.*

Consanguinity of Parents.	Total.	Blind Brothers, Sisters or Ancestors.	Collateral Relatives or Descendants alone, Blind.	No Blind Relatives or Relatives by Marriage alone, Blind.	Not Stated.
All classes—					
The blind	64,763	8629	2338	46,759	7037
Totally blind	35,645	4378	1215	26,349	3703
Partially blind	29,118	4251	1123	20,410	3334
Parents cousins—					
The blind	2,527	844	149	1,456	78
Totally blind	1,291	435	78	739	39
Partially blind	1,236	409	71	717	39
Parents not cousins—					
The blind	53,980	7395	2095	43,368	1122
Totally blind	29,892	3720	1090	24,541	541
Partially blind	24,088	3675	1005	18,827	581
Consanguinity of parents not stated—					
The blind	8,256	390	94	1,935	5837
Totally blind,	4,462	223	47	1,069	3123
Partially blind	3,794	167	47	866	2714

July 1888 the Royal Institution of the Blind has obtained a new building at Tomteboda, near Stockholm.

Norway. The law of the 8th of July 1881, concerning the instruction of abnormal children, has imposed on the state the duty of establishing a sufficient number of schools for the blind in Norway, as well as for the other abnormal children. All the blind of the country, from 9 years of age until the age of 21, are compelled to be educated, with a maximum of 8 years of instruction for each pupil.

Finland. The census of 1873 showed that in Finland there were 7959 blind in a total population of about 2,000,000 inhabitants, the proportion reaching the very high figure of one for every 251 of the total population. Nevertheless there were only 160 of school age. For these there are two institutions, one at Helsingfors, where the instruction is given in the Swedish language, and where there are about 12 pupils, and another at Kuopio, where the instruction is given in the Finnish language, and where the pupils number about 30.

Austria. According to information received from the I.R. Central Commission for Statistics, the number of blind in the provinces represented in the Austrian Reichsrath amounted to 15,582 in the year 1884. Of these, 2345 were children up to 15 years of age, namely 433 below 5, 779 from 5 to 10, and 1113 from 10 to 15 years. The total number of institutions for blind children in Austria amounts to 8. The blind children of school age who are not placed in special institutions are compulsorily taught in the public general free schools, as far as practicable. The number of blind in the whole dominion of the crown of St Stephen was 208,391.

Italy. The number of blind persons in Italy was 21,718, according to the census of 1881, and those of school age were estimated to form 25 % of the whole, or about 5429 in number. But no special cognizance of the blind is taken in the government census. There are 20 institutions, schools and workshops for the blind.

Russia. Statistics with regard to the number and condition of the blind in the Russian empire are of a very limited character, and it is only of late years that any attempt has been made to draw up any accurate returns with regard to them. The total number of the blind throughout the empire is generally reckoned at from 160,000 to 200,000, thus making 1600 to 2000 per million inhabitants. In Russia there are 21 institutions for the support of the blind.

Egypt. "In Egypt the blind are very numerous in comparison with other countries, and although no exact statistics are at present obtainable on this point, it is computed that the proportion is at least one totally blind person to every 50 of the population. This is principally the result of acute ophthalmia occurring in infancy, and it is fostered by the superstitious observance which prevents the mothers from washing their children from the time of birth until they are two years old, at which late date only they are weaned. There is also a great deal of infection carelessly and ignorantly conveyed direct from eye to eye, by means of unwashed fingers, and this is accountable for the occurrence of much more eye-disease than any that may be caused by the proverbial flies. The only employment followed by the blind, both Mahommedan and Coptic (or native Christian), and that only to a limited extent, is recitation aloud—the former repeating portions of the Koran at funerals, and the latter chanting the church-ritual in their services; the blind girls and women are without occupation. Practically no education is given to the blind as a class, and anything which they learn has to be acquired orally by frequent repetition. The blind were not always so completely neglected, as the native ecclesiastical authorities (*Wakf*) gave an annual grant of £2000 for the continued maintenance of a school for the blind and the deaf and dumb in Cairo, which taught about 80 day-pupils; the latter years of the school were passed under the ministry of education, and it was ultimately discontinued. Such a condition of affairs appealed to Dr T. R. Armitage, and explains his motive in trying to establish some proper means for affording the blind in Egypt the necessary scholastic instruction and other training. In Egypt, as in other countries, it is occasionally very difficult, and takes some time, to start any enterprise such as this on a satisfactory and practical footing, and it was left for Mrs T. R. Armitage to be the means of successfully carrying out her husband's wishes in this particular. In 1900 Mrs Armitage asked Dr Kenneth Scott to prepare a scheme for the education and welfare of the blind in Egypt, on lines suggested to her. This, through the British and Foreign Blind Association, was submitted to Queen Victoria, who graciously commanded it to be sent, through the foreign office, to the khedive, who in mark of approbation and encouragement generously gave a handsome donation towards its realization. The Institution for the Blind was established at Zeitoun, Cairo, early in the year 1901, through funds provided by Mrs T. R. Armitage. The object of the institution, which is wholly unsectarian in character, is to educate and train the blind mentally and physically and in industrial occupations, and at the same time to improve their moral standard, so that eventually they may become in great measure, or even completely, self-supporting." (Dr Kenneth Scott.)

India. India has a large proportion of blind inhabitants, ranging from one in 600 in some provinces, to one in 400 in others, with a total of more than half a million. Until recently, little had been done in the way of organized effort to educate them, though many of the missionaries had helped individual cases. At Amritsar a large and well-organized work for the blind has been carried on for many years. This school has now been moved to Rajpur, and helps 70 blind women and children. In 1903 a government school and hospital were established at Bombay as a memorial to Queen Victoria. Reading, writing, arithmetic, tailoring, typewriting, carpentering, lathe-work and carpet-weaving are taught. There are small schools at Parantij, Calcutta, Palancottah, Calicut, Coorg, Chota-Nagpur, and at Moulmein in Burma. The memorial to Queen Victoria in Ceylon took the form of work for the blind. J. Knowles, with the help of L. Garthwaite of the Indian Civil Service, devised a scheme of oriental Braille, which has been adopted by the British and Foreign Bible Society for the production of the Scriptures in Eastern languages.

China. Blindness is very prevalent in China, and to eye-diseases, neglect and dirt, must be added leprosy and smallpox as causes. blind beggars may be seen on every highway, clamouring for alms. As in India their pitiful condition attracted the attention of the missionaries. W. H. Murray, a Scottish missionary in Peking, made a simple and ingenious adaptation of the Braille symbols to the complicated system of Chinese printing, in which over 4000 characters are required. It was necessary to represent at least 408 sounds, and each one was given a corresponding Braille number. When a pupil reads the number he knows instantly the sound for which it stands. A school for the blind was established at Peking, and the version of the Scriptures printed at Peking can be read in all the provinces where the Northern Mandarin dialect is spoken (see Miss Gordon Cumming, *The Inventor of the Numeral Type for China*). A Braille code has recently been arranged for Mandarin, based on a system of initials and finals, by Miss Garland of the China Inland Mission. At Foochow there is a large school for boys and girls in connexion with the Church Missionary Society. At Ningpo, Amoy, Canton and Fukien work for the blind is carried on by the missionaries.

Japan. The blind in Japan have long been trained in massage, acupuncture and music, and until recently, with few exceptions, none but the blind engaged in these occupations. From three to five years are required to become proficient in massage, but a blind person is then able to support himself. In Yokohama, with a population of half a million, there are 1000 men and women engaged in massage, and all but about 100 of these are blind. In 1878 a school for the blind and deaf-mutes was established in Kyoto, and soon after one in Tokyo. Japan has four schools for the blind, and seven combined schools for the blind and deaf-mutes.

Palestine. As in other Eastern countries, blindness is very prevalent in Palestine. Ophthalmic hospitals and medical attendance are now available in the larger towns, and the missionary schools have done much to inculcate habits of cleanliness, therefore there is a slight decrease in the number of the blind. The home and school for blind girls in Jerusalem is the outcome of a day school opened in 1896 by an American missionary. There is also a small school at Urfa under the auspices of the American mission in that town.

Education

Early training. As more sensations are received through the eye than through any other organ, the mind of a blind child is vacant, and the training should begin early or the mind will degenerate. Indirectly the loss of sight results in inaction. If no one encourages a blind child to move, he will sit quietly in a corner, and when he leaves his seat will move timidly about. This want of activity produces bad physical effects, and further delays mental growth. The blind are often injured, some of them ruined for life, through the ignorance and mistaken kindness of their friends during early childhood. They should be taught to walk, to go up and down stairs, to wash, dress and feed themselves.

They should be carefully taught correct postures and attitudes, and to avoid making grimaces. They should be told the requirements of social conventions which a seeing child learns through watching his elders. They have no consciousness that their habits are disagreeable, and the earlier unsightly mannerisms are corrected the better. It is a fallacy to suppose that the other senses of the blind are naturally sharper than those of the seeing. It is only when the senses of hearing and touch have been cultivated that they partially replace sight, and such cultivation can begin with very young children.

Blind children have a stronger claim upon the public for education than other children, because they start at a disadvantage in life, they carry a burden in their infirmity, they come mostly of poor parents, and without special instruction and training they are almost certain to become a public charge during life.

Public authorities should adopt the most efficient plan for preparing blind children to become active, independent men and women, rather than consider the cheapest and easiest method of educating them. We cannot afford to give the blind an education that is not the best of its kind in the trade or profession they will have to follow. There are many seeing persons with little education who are useful citizens and successful in various industries, but an uneducated blind person is helpless, and must become dependent.

The surroundings of the blind do not favour the development of activity, self-reliance and independence. Parents and friends find it easier to attend to the wants and requirements of their blind children than to teach them to be self-helpful in the common acts of everyday life. A mistaken kindness leads the friends to guard every movement and prevent physical exertion. As a rule, the vitality of the blind is much below the average vitality of seeing persons, and any system of education which does not recognize and overcome this defect will be a failure. It is the lack of energy and determination, not the want of sight, that causes so many failures among the blind.

A practical system of education, which has for its object to make the blind independent and self-sustaining, must be based upon a comprehensive course of physical development. A blind man who has received mechanical training, general education, or musical instruction, without physical development, is like an engine provided with everything necessary except motive power.

Physical training.

Schools for the blind should be provided with well-equipped gymnasia, and the physical training should include various kinds of mass and apparatus work. Large and suitable playgrounds are also essential. Besides a free space where they can run and play, it should have a supply of swings, tilts, jumping-boards, stilts, chars-à-bancs, skittle-alleys, &c. Any game that allows of sides being taken adds greatly to the enjoyment, and is a powerful incentive to play. The pupils should be encouraged to enter into various competitions, as walking, running, jumping, leap-frog, sack-racing, shot-pitching, tug-of-war, &c. Cycling, rowing, swimming and roller-skating are not only beneficial but most enjoyable.

The subjects in the school curriculum should be varied according to the age and capacity of the pupils, but those which cultivate the powers of observation and the perceptive faculties should have a first place. Object lessons or nature study should have a large share of attention. Few people realize that a blind child knows nothing of the size, shape and appearance of common objects that lie beyond the reach of his arm. When he has once been shown how to learn their characteristics, he will go on acquiring a knowledge of his surroundings unaided by a teacher. Again, a careful drill in mental arithmetic, combining accuracy with rapidity, is essential. A good command of English should be cultivated by frequent exercises in composition, and by committing to memory passages of standard prose and poetry. In his secondary course, the choice of subjects must depend upon his future career. Above all, stimulate a love of good reading.

Mental training.

From the earliest years manual dexterity should be cultivated by kindergarten work, modelling, sewing, knitting and sloyd. Blind children who have not had the advantage of this early handwork find much more difficulty when they begin a regular course in technical training. Early manual training cultivates the perceptive faculties, gives activity to the body, and prepares the hands and fingers for pianoforte-playing, pianoforte-tuning and handicrafts.

Early manual training.

Besides a good general education, the blind must have careful and detailed training in some handicraft, or thorough preparation for some profession. The trades and professions open to them are few, and if they fail in one of these they cannot turn quickly to some other line of work. Those who have charge of their education should avail themselves of the knowledge that has been gained in all countries, in order to decide wisely in regard to the trade or occupation for which each pupil should be prepared. It may be some kind of handicraft, pianoforte-tuning, school-teaching, or the profession of music; the talent and ability of each child should be carefully considered before finally deciding his future occupation. The failure to give the blind a practical education often means dependence through life.

Choice of occupation.

Pianoforte-tuning as an employment for the blind originated in Paris. About 1830 Claud Montal and a blind fellow-pupil attempted to tune a piano. The seeing tuner in charge of the school pianos complained to the director, and they were forbidden to touch the works, but the two friends procured an old piano and continued their efforts. Finally, the director, convinced of their skill, gave them charge of all the school pianos, and classes were soon started for the other pupils. When Montal left the institution he encountered great prejudice, but his skill in tuning became known to the professors of the Conservatoire, and his work rapidly increased and success was assured. Montal afterwards established a manufactory, and remained at its head for many years. Tuning is an excellent employment for the blind, and one in which they have certain advantages. The seeing who excel in the business go through a long apprenticeship, and one must give the blind even more careful preparation. They must work a number of hours daily, under suitable tuition, for several years. After a careful examination by an expert pianoforte-tuning authority, every duly qualified tuner should be furnished with an official certificate of proficiency, and tuners who cannot take the required examinations ought not to be allowed to impose upon the public.

Pianoforte-tuning.

Music in its various branches, when properly taught, is the best and most lucrative employment for the blind. To become successful in the profession, it is necessary for the blind to have opportunities of instruction, practice, study, and hearing music equal to those afforded the seeing, with whom they will have to compete in the open market. If the blind musician is to rise above mediocrity, systematic musical instruction in childhood is indispensable, and good instruction will avail little unless the practice is under constant and judicious supervision. The musical instruction, in its several branches of harmony, pianoforte, organ and vocal culture, must be addressed to the mind, not merely to the ear. This is the only possible method by which musical training can be made of practical use to the blind. The blind music teacher or organist must have a well-disciplined mind, capable of analysing and dealing with music from an intellectual point of view. If the mental faculties have not been developed and thoroughly disciplined, the blind musician, however well he may play or sing, will be a failure as a teacher. The musical instruction must be more thorough, more analytical, more comprehensive, than corresponding instruction given to seeing persons. In 1871 Dr Armitage published a book on the education and employment of the blind, in which he stated that of the blind musicians trained in the United Kingdom not more than one-half per cent were able to support themselves, whereas of those trained in the Paris school 30 % supported themselves fully, and 30 % partially, by the profession of music.

Musical training.

To provide a better education and improve the musical training of the blind, the Royal Normal College was established in 1872.[1] Its object was to afford the young blind a thorough general and musical education, to qualify them to earn a living by various intellectual pursuits, especially as organists, pianists, teachers and pianoforte-tuners. From the first, the founders of the college maintained that the blind could only be made self-sustaining by increasing their intelligence, bodily activity and dexterity, by inculcating business habits, by arousing their self-respect, and by creating in their minds a belief in the possibility

Royal Normal College.

[1] Its principal (responsible, with Dr Armitage, the duke of Westminster and others, for its foundation) was Sir F. J. Campbell, LL.D., F.R.G.S., F.S.A., himself a blind man, who, born in Tennessee, U.S.A., in 1832, and educated at the Nashville school, and afterwards in music at Leipzig and Berlin, had from 1858 to 1869 been associated with Dr Howe at the Perkins Institution, Boston. He was knighted in 1909.

of future self-maintenance. A kindergarten department was opened in 1881. In July 1896 Queen's Scholarship examinations were held at the Royal Normal College, for the first time, for blind students, and the institution recognized by the Education Department as a training college for blind school-teachers.

From the first day a pupil enters school until he finishes his course of training, care must be taken to implant business habits.

Educational needs.

Blind children are allowed to be idle and helpless at home; they do not learn to appreciate the value of time, and in after years this is one of the most difficult lessons to inculcate. Having drifted through childhood, they are content to drift through life. The important habits of punctuality, regularity and precision should be cultivated in all the arrangements and requirements. A great effort should be made to lift the blind from pauperism. As soon as pupils enter a school, all semblance of pauper origin should be removed. They must be inspired with a desire for independence and a belief in its possibility. In the public mind blindness has been so long and closely associated with dependence and pauperism that schools for the blind, even the most progressive, have been regarded hitherto as asylums rather than educational establishments. A sad mistake in the training of the blind is the lack of an earnest effort to improve their social condition. The fact that their education has been left to charity has helped to keep them in the ranks of dependents.

The question of day-classes versus boarding-schools has been much discussed. It is claimed by some that a blind child gains more independence if kept at home and educated in a school with the seeing. This theory is not verified by practical experience. At home its blindness makes the child an exception, and often it takes little or no part in the active duties of everyday life. Again, in a class of seeing children the blind member is treated as an exception. The memory is cultivated at the expense of the other faculties, and the facility with which it recites in certain subjects causes it to make a false estimate of its attainments. The fundamental principles in different branches are imperfectly understood, from the failure to follow the illustrations of the teacher. In the playgrounds, a few irrepressibles join in active games, but most of the blind children prefer a quiet corner.

For the sake of economy, schools for deaf-mutes and the blind are sometimes united. As the requirements of the two classes are entirely separate and distinct, the union is undesirable, whether for general education or industrial training. The plan was tried in America, but has been given up in most of the states. To meet the difficulty of proper classification with small numbers, blind boys and girls are taught in the same classes. The acquaintances then made lead to intimacy in later years and foster intermarriage among the blind. Intermarriage among the blind is a calamity, both for them and for their children; some who might have been successful business men are to-day begging in the streets in consequence of intermarriage.

In every school or class there will be a certain number of young blind children who, from neglect, want of food, or other causes, are feeble in body and defective in intellect; such children are a great burden in any class or school, and require special treatment and instruction. Educational authorities should unite and have one or two schools in a healthful locality for mentally defective blind children.

More and more, in educational work for the seeing, there is a tendency to specialize, and thus enable each student to have the best possible instruction in the subjects that bear most directly on his future calling. To prepare the blind for self-maintenance, there should be an equally careful study of the ability of each child.

A scheme of education which has for its object to make the blind a self-sustaining class should include: kindergarten schools for children from 5 to 8 years of age; preparatory schools from 8 to 11; intermediate schools from 11 to 14. At 14 an intelligent opinion can be formed in regard to the future career of the pupils. They will fall naturally into the following categories:—(*a*) A certain number will succeed better in handicraft than in any other calling, and should be drafted into a suitable mechanical school. (*b*) A few will have special gifts for general business, and should be educated accordingly. (*c*) A few will have the ability and ambition to prepare for the university, and the special college should afford them the most thorough preparation for the university examinations. (*d*) Some will have the necessary talent, combined with the requisite character and industry, to succeed in the musical profession; in addition to a liberal education, these should have musical instruction, equal to that given to the seeing, in the best schools of music. (*e*) Some may achieve excellent success as pianoforte-tuners, and in a pianoforte-tuning school strict business habits should be cultivated, and the same attention to work required as is demanded of seeing workmen in well-regulated pianoforte factories.

The United Kingdom stands almost alone in allowing the education of the blind to depend upon charity. In the United States, each state government not only makes liberal provision for the education and training of the blind, but most of them provide grounds, buildings and a complete equipment in all departments. Although it costs much more *per capita*, from £40 to £60 per annum, the blind are as amply provided with the means of education as the seeing. The government of the United States appropriates $10,000 per annum for printing embossed books for the blind. Most of the European countries and the English colonies provide by taxation for the education of the blind.

Types

The earliest authentic records of tangible letters for the blind describe a plan of engraving the letters upon blocks of wood, the invention of Francesco Lucas, a Spaniard, who dedicated it to Philip II. of Spain in the 16th century. In 1640 Pierre Moreau, a writing-master in Paris, cast a movable leaden type for the use of the blind, but being without means to carry out his plan, abandoned it. Pins inserted in cushions were next tried, and large wooden letters. After these came a contrivance of Du Puiseaux, a blind man, who had metal letters cast and set them in a small frame with a handle. Whilst these experiments were going on in France, attempts had also been made in Germany. R. Weissembourg (a resident of Mannheim), who lost his sight when about seven years of age, made use of letters cut in cardboard, and afterwards pricked maps in the same material. By this method he taught Mlle Paradis, the talented blind musician and the friend of Valentin Haüy.

To Haüy belongs the honour of being the first to emboss paper as a means of reading for the blind; his books were embossed in large and small italics, from movable type set by his pupils. The following is an account of the origin of his discovery. Haüy's first pupil was François Lesueur, a blind boy whom he found begging at the porch door of St Germain des Prés. While Lesueur was sorting the papers on his teacher's desk, he came across a card strongly indented by the types in the press. The blind lad showed his master he could decipher several letters on the card. Immediately Haüy traced with the handle of his pen some signs on paper. The boy read them, and the result was printing in relief, the greatest of Haüy's discoveries. In 1821 Lady Elizabeth Lowther brought embossed books and types from Paris, and with the types her son, Sir Charles Lowther, Bart., printed for his own use the Gospel of St Matthew. The work of Haüy was taken up by Mr Gall of Edinburgh, Mr Alston of Glasgow, Dr Howe of Boston, Mr Friedlander of Philadelphia, and others. In 1827 James Gall of Edinburgh embossed some elementary works, and published the Gospel of St John in 1834. His plan was to use the common English letter and replace curves by angles.

In 1832 the Edinburgh Society of Arts offered a gold medal for the best method of printing for the blind, and it was awarded to Dr Edmond Fry of London, whose alphabet consisted of ordinary capital letters without their small strokes. In 1836 the Rev. W. Taylor of York and John Alston in Glasgow began to print with Fry's type. Mr Alston's appeal for a printing fund met with a hearty response, and a grant of £400 was made by the treasury;

in 1838 he completed the New Testament, and at the end of 1840 the whole Bible was published in embossed print. In 1833 printing for the blind was commenced in the United States at Boston and Philadelphia. Dr S. G. Howe in Boston used small English letters without capitals, angles being employed instead of curves, while J. R. Friedlander in Philadelphia used only

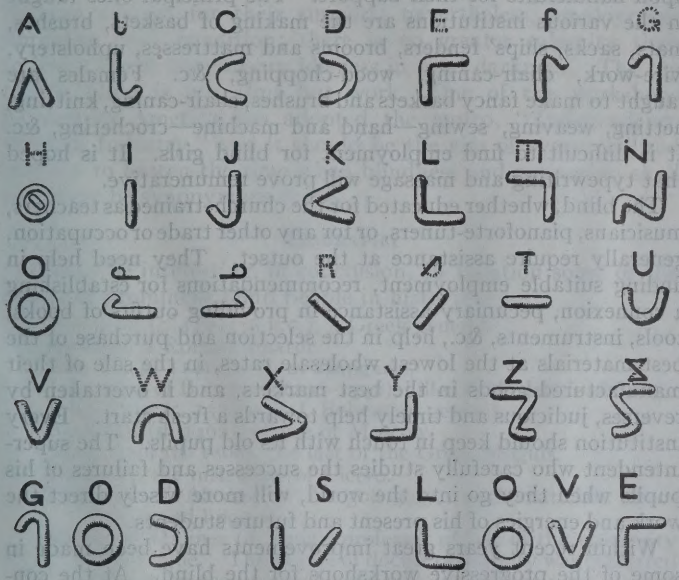
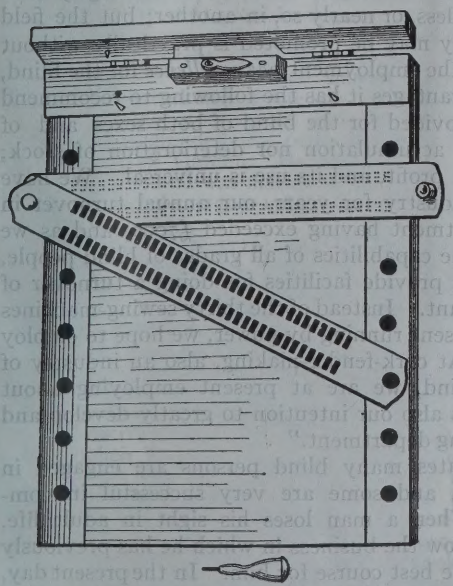


FIG. 1.—Moon Alphabet.

Roman capitals. About 1838 T. M. Lucas of Bristol, a shorthand writer, and J. H. Frere of Blackheath, each introduced an alphabet of simpler forms, and based their systems on stenography. In 1847 Dr Moon of Brighton brought out a system which partially retains the outline of the Roman letters. This type is easily read by the adult blind, and is still much used by the home teaching societies. The preceding methods are all known as line types, but the one which is now in general use is a point type.

In the early part of the 19th century Captain Charles Barbier,



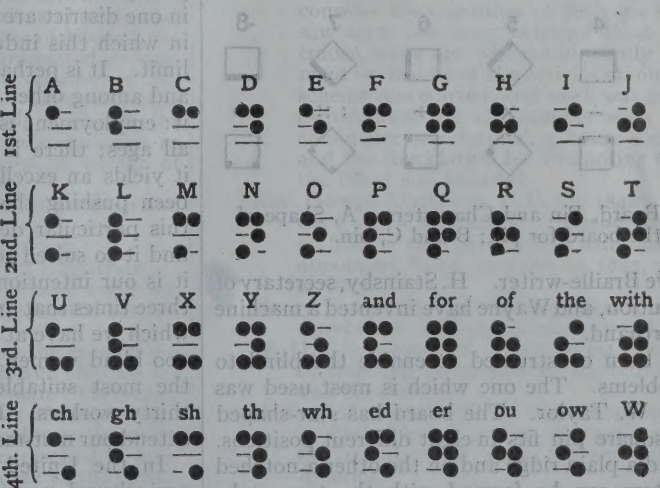
Apparatus for writing Braille.

a French officer, substituted embossed dots for embossed lines. The slate for writing was also invented by him.

Barbier arranged a table of speech sounds, consisting of six lines with six sounds in each line. His rectangular cell contained two vertical rows of six points each. The number of points in the left-hand row indicates in which horizontal line, and that in the right-hand row in which vertical line, of the printed table the speech sound is to be found.

Louis Braille, a pupil and afterwards a professor of the Institution Nationale des Jeunes Aveugles, Paris, studied all the various methods in which arbitrary characters were used. Barbier's letter, although it gave a large number of combinations, was too long to be covered by the finger in reading, and Louis Braille reduced the number of dots. In 1834 Braille perfected his system. Dr Armitage considered it was the greatest advance that had ever been made in the education of the blind.

The Braille alphabet consists of varying combinations of six dots in an oblong, of which the vertical side contains three, and the horizontal two dots ⠒. There are 63 possible combinations of these six dots, and after the letters of the alphabet have been supplied, the remaining signs are used for punctuation, contractions, &c.



Braille Alphabet. The black dots represent the raised points of the sign in their position in relation to the group of six.

FIG. 2.

"For writing, a ruler is used, consisting of a metal bed either grooved or marked by groups of little pits, each group consisting of six; over this bed is fitted a brass guide, punched with oblong holes whose vertical diameter is three-tenths of an inch, while the horizontal diameter is two-tenths. The pits are arranged in two parallel lines, and the guide is hinged on the bed in such a way that when the two are locked together the openings in the guide correspond exactly to the pits in the bed. The brass guide has a double row of openings, which enables the writer to write two lines; when these are written, he shifts his guide downwards until two little pins, which project from the under surface at its ends, drop into corresponding holes of a wooden board; then two more lines are written, and this operation is repeated until the bottom of the page is reached. The paper is introduced between the frame and the metal bed. The instrument for writing is a blunt awl, which carries a little cap of paper before it into the grooves or pits of the bed, thereby producing a series of little pits in the paper on the side next the writer. When taken out and turned over, little prominences are felt, corresponding to the pits on the other side. The reading is performed from left to right, consequently the writing is from right to left; but this reversal presents no practical difficulty as soon as the pupil had caught the idea that in reading and writing alike he has to go *forwards*.

"The first ten letters, from 'a' to 'j,' are formed in the upper and middle grooves; the next ten, from 'k' to 't,' are formed by adding one lower back dot to each letter of the first series; the third row is formed from the first by adding two lower dots to each letter; the fourth row, similarly, by adding one lower front dot.

"The first ten letters, when preceded by the prefix for numbers, stand for the nine numbers and the cipher. The same signs, written in the lower and middle grooves, instead of the upper and middle, serve for punctuation. The seven last letters of each series stand for the seven musical notes—the first series representing quavers, the second minims, the third semibreves, the fourth crotchets. Rests, accidentals, and every other sign used in music can be readily and clearly expressed without having recourse to the staff of five lines which forms the basis of ordinary musical notation, and which, though it has been reproduced for the blind, can only be considered as serving to give them an idea of the method employed by the seeing, and cannot, of course, be written. By means of this dotted system, a blind man is able to keep memoranda or accounts, write his own music, emboss his own books from dictation, and carry on correspondence."

The Braille system for literature and music was brought into general use in England by Dr T. R. Armitage. Through his wis

untiring zeal and noble generosity, every blind man, woman and child throughout the English-speaking world can now obtain not only the best literature, but the best music.

In America there are two modifications of the point type, known as New York point and American braille. In each of these the most frequently recurring letters are represented by the least number of dots.

The original Braille is used by the institutions for the blind in the British empire, European countries, Mexico, Brazil and Egypt.

Appliances for Educational Work

The apparatus for writing point alphabets has already been described. Frank H. Hall, former superintendent of the School for the Blind, Jacksonville, Ill., U.S.A., has invented a Braille typewriter and stereotype maker; the latter embosses metal plates from which any number of copies can be printed. An automatic Braille-writer has been brought out in Germany, and William B. Wait (principal of the Institution for the Blind in New York City) has invented a machine for writing New York point. These machines are expensive, but A. Wayne of Birmingham has brought

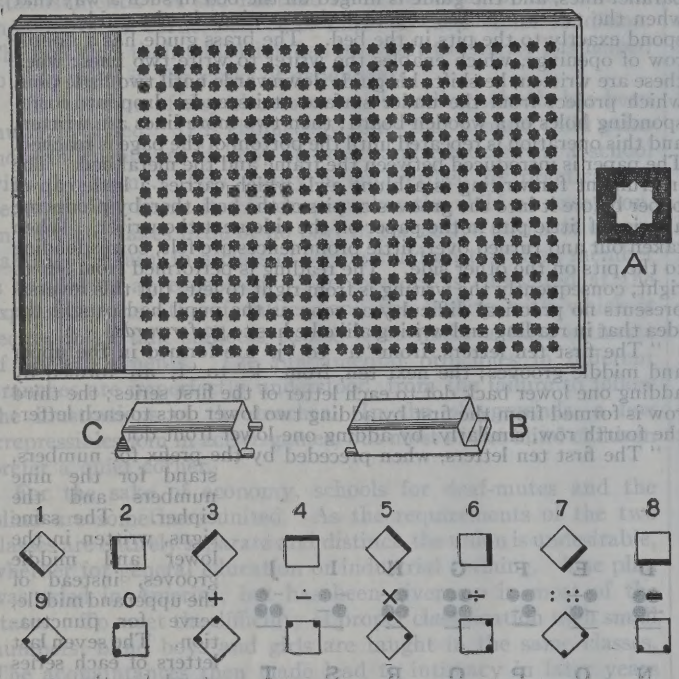


Fig. 3.—Arithmetic Board, Pin and Characters. A, Shape of opening in the board for pin; B and C, pin.

out a cheap and effective Braille-writer. H. Stainsby, secretary of the Birmingham institution, and Wayne have invented a machine for writing Braille shorthand.

Many boards have been constructed to enable the blind to work arithmetical problems. The one which is most used was invented by the Rev. W. Taylor. The board has star-shaped openings in which a square pin fits in eight different positions. The pin has on one end a plain ridge and on the other a notched ridge; sixteen characters can be formed with the two ends. The board is also used for algebra, another set of type furnishing the algebraic symbols.

Books are prepared with raised geometrical diagrams; figures can be formed with bent wires on cushions, or on paper with a toothed wheel attached to one end of a pair of compasses.

Geography is studied by means of relief maps, manufactured in wood or paper. The physical maps and globes prepared for seeing children are used also for the blind.

Chiefly owing to the unremitting energy and liberality of Dr T. R. Armitage, in connexion with the British and Foreign Blind Association, all school appliances for the blind have been greatly improved and cheapened.

Employment

Reference has been made to the fact that music in its various branches furnishes the best and most lucrative employment for the blind. But those who have not the ability, or are too old to be trained for music or some other profession, must depend upon handicrafts for their support. The principal ones taught in the various institutions are the making of baskets, brushes, mats, sacks, ships' fenders, brooms and mattresses, upholstery, wire-work, chair-caning, wood-chopping, &c. Females are taught to make fancy baskets and brushes, chair-caning, knitting, netting, weaving, sewing—hand and machine—crocheting, &c. It is difficult to find employment for blind girls. It is hoped that typewriting and massage will prove remunerative.

The blind, whether educated for the church, trained as teachers, musicians, pianoforte-tuners, or for any other trade or occupation, generally require assistance at the outset. They need help in finding suitable employment, recommendations for establishing a connexion, pecuniary assistance in providing outfits of books, tools, instruments, &c., help in the selection and purchase of the best materials at the lowest wholesale rates, in the sale of their manufactured goods in the best markets, and if overtaken by reverses, judicious and timely help towards a fresh start. Every institution should keep in touch with its old pupils. The superintendent who carefully studies the successes and failures of his pupils when they go into the world, will more wisely direct the work and energies of his present and future students.

Within recent years great improvements have been made in some of the progressive workshops for the blind. At the conference in London in 1902 Mr T. Stoddart gave the following information in regard to the work in Glasgow:—"We are building very extensive additions to our workshops, which will enable us to accommodate 600 blind people. We mean to employ the most up-to-date methods, and are introducing electric power to drive the machinery and light the workshops. We have to do with the average blind adult recently deprived of sight after he has attained an age of from 25 to 40 or even 50 years. In Glasgow we have developed an industry eminently suitable for the employment of the blind, namely, the manufacture of new and the remaking of old bedding. There are industries which are purely local, where certain articles of manufacture largely used in one district are useless, or nearly so, in another; but the field in which this industry may be promoted is practically without limit. It is perhaps the employment *par excellence* for the blind, and among other advantages it has the following to recommend it: employment is provided for the blind of both sexes and of all ages; there is no accumulation nor deterioration of stock; it yields an excellent profit, and its use is universal. We have been pushing this industry for years, our annual turnover in this particular department having exceeded £7000, and as we find it so suited to the capabilities of all grades of blind people, it is our intention to provide facilities for doing a turnover of three times that amount. Instead of the thirty sewing-machines which we have at present running by power, we hope to employ 100 blind women. At cork-fender-making, also an industry of the most suitable kind, we are at present employing about thirty workers. It is also our intention to greatly develop and extend our mat-making department."

In the United States many blind persons are engaged in agricultural pursuits, and some are very successful in commercial pursuits. When a man loses his sight in adult life, if he can possibly follow the business in which he has previously been engaged, it is the best course for him. In the present day, work in manufactories is subdivided to such an extent that often some one portion can be done by a blind person; but it needs the interest of some enthusiastic believer in the capabilities of the blind to persuade the seeing manager that blind people can be safely employed in factories.

In England, at the time of the royal commission of 1889, upwards of 8000 blind persons, above the age of 21, were in receipt of relief from the guardians, of whom no less than 3278 were resident in workhouses or workhouse infirmaries. The

census returns for 1901 indicate that the number at that time was equally large. It would certainly be more economical to establish workshops where the able-bodied adult blind can be trained in some handicraft and employed.

The papers read at the various conferences show that, even under the most favourable circumstances, some are not able to earn enough for their support; nevertheless, employment improves their condition; there is no greater calamity than to live a life of compulsory idleness in total darkness. The cry of the blind is not alms but work. One of the workshops in western America has adopted the motto, "Independence through Industry," and it should be the aim of every civilized country to hasten the time when blindness and pauperism shall no longer be synonymous terms.

Biography

It may be interesting, in conclusion, to mention some of the names of prominent blind people in history:—

Timoleon (*c.* 410–336 B.C.), a Greek general.
Aufidius, a Roman senator.
Bela II. (d. 1141), king of Hungary.
John, king of Bohemia (1296–1346), killed in the battle of Crécy.
John Zizca (*c.* 1376–1424), Bohemian general.
Basil III. (d. 1462), prince of Moscow.
Shah Alam (d. 1806), the last of the Great Moguls.
Diodorus, the instructor of Cicero.
Didymus of Alexandria (*c.* 308–395), mathematician, theologian and linguist.
Nicase of Malines (d. 1492), professor of law in the university of Cologne. The degree of doctor of divinity was conferred on him by the university of Louvain, and the pope granted a dispensation suspending the law of the Church, that he might be ordained as a priest.
Ludovico Scapinelli (b. 1585), professor at the universities of Bologna, Modena and Pisa.
James Schegkius (d. 1587), professor of philosophy and medicine at Tübingen.
Franciscus Salinas, professor of music at the university of Salamanca, in the 16th century.
Nicholas Bacon (16th century), doctor of laws in the university of Brussels.
Count de Pagan of Avignon (b. 1604), mathematician of note.
John Milton (1608–1674), the poet.
Rev. Richard Lucas (1648–1715), prebendary of Westminster.
Nicholas Saunderson (*q.v.*; 1682–1739).
John Stanley (1713–1786), Mus. Bac. Oxon., was born in London in 1713. At seven he began to study music, and made such rapid progress that he was appointed organist of All-Hallows, Bread Street, at the age of eleven. He graduated as Mus. Bac. at Oxford when sixteen, and was organist of the Temple church at the age of twenty-one. He composed a number of cantatas, and after the death of Handel he superintended the performance of Handel's oratorios at Covent Garden. He received the degree of doctor of music, and was master of the king's band.
Leonard Euler (1707–1783), the celebrated mathematician and astronomer.
John Metcalf (b. 1717), road-builder and contractor.
Sir John Fielding (d. 1780), eminent lawyer and magistrate.
Thomas Blacklock (*q.v.*; 1721–1791), Scottish scholar and poet.
François Huber (1750–1831), Swiss naturalist, noted for his observations on bees.
Edward Rushton (b. 1756). At six years of age he entered the Liverpool free grammar school, and at eleven shipped for his first voyage in a West India merchantman. On a later voyage he was shipwrecked, and owed his life to the self-sacrifice of a negro. Rushton and the black man swam for their lives to a floating cask; the negro reached it first, saw Rushton about to sink, pushed the cask to the failing lad, and struck out for the shore, but never reached it. This incident made Rushton an enthusiastic champion through life of the cause of the negro. During a voyage to Dominica malignant ophthalmia broke out among the slave cargo, and Rushton caught the disease by attending them in the hold when all others refused help. This attack deprived him of sight, and cut short a promising nautical career at the age of nineteen. He struggled bravely against difficulties, and besides entering successfully into various literary engagements, maintained himself and family as a bookseller. A volume of his poems containing a memoir was published in 1824.
Marie Thérèse von Paradis (b. 1759), the daughter of an imperial councillor in Vienna. She was a godchild of the empress Marie Thérèse, and as her parents possessed rank and wealth, no expense was spared in her education. Weissembourg, a blind man, was her tutor, and she learned to spell with letters cut out of pasteboard, and read words pricked upon cards with pins. She studied the piano with Richter (of Holland) and Kozeluch. She was a highly esteemed pianist, and Mozart wrote a concerto for her; she also attained considerable skill on the organ, in singing and in composition. She made a concert tour of Europe, visiting the principal courts and everywhere achieving great success. She remained four months in England, under the patronage of the queen. On her return to Vienna, through Paris, she met Valentin Haüy. Towards the close of her life she devoted herself to teaching singing and the pianoforte with great success.
James Holman (*q.v.*; 1786–1857), traveller.
William H. Prescott (*q.v.*; 1796–1859), the American historian.
Several early 19th-century musicians held situations as organists in London; among them Grenville, Scott, Lockhart, Mather, Stiles and Warne.
Louis Braille (1809–1852). In 1819 he went to the school for the blind in Paris. He became proficient on the organ, and held a post in one of the Paris churches. While a professor at the Institution Nationale des Jeunes Aveugles, he perfected his system of point writing.
Alexander Rodenbach, Belgian statesman. When a member of the chamber of deputies, in 1836, he introduced and succeeded in establishing by law the right of blind and deaf-mute children to an education.
Dr William Moon (1818–1894), the inventor of the type for the blind which bears his name.
Rev. W. H. Milburn, D.D. (1823–1903), the American chaplain, known in the United States as "The Blind Man Eloquent." He often travelled from thirty to fifty thousand miles a year, speaking and preaching every day. He was three times chaplain of the House of Representatives, and in 1893 was chosen to the chaplaincy of the senate.
Dr T. R. Armitage (b. 1824). After spending his youth on the continent, he became a medical student, first at King's College, and afterwards at Paris and Vienna. His career promised to be a brilliant one, but at the age of thirty-six failing sight caused him to abandon his profession. For the rest of his life he devoted his time and fortune to the interests of the blind. He reorganized the Indigent Blind Visiting Society, endowed its Samaritan fund, founded the British and Foreign Blind Association, and, in conjunction with the late duke of Westminster and others, founded the Royal Normal College.
Elizabeth Gilbert (b. 1826), daughter of the bishop of Chichester. She lost her sight at the age of three. She was educated at home, and took her full share of household duties and cares and pleasures. When she was twenty-seven, she began to consider the condition of the poor blind of London. She saw some one must befriend those who had been taught trades, some one who could supply material, give employment or dispose of the articles manufactured. In 1854 her scheme was started, and work was given to six men in their own homes, but the number soon increased. In 1856 a committee was formed, a house converted into a factory, and the Association for Promoting the General Welfare of the Blind was founded.
Rev. George Matheson, D.D. (b. 1842), preacher and writer of the Church of Scotland. The degree of D.D. was conferred on him by the university of Edinburgh in 1879, and he was appointed Baird Lecturer in 1881, and St Giles' Lecturer in 1882.
Henry Fawcett (1833–1884), professor of political economy at Cambridge, and postmaster-general.
W. H. Churchman of Pennsylvania, who was instrumental in establishing the schools for the blind in Tennessee, Indiana and Wisconsin.
H. L. Hall, founder of the workshops and home for the blind in Philadelphia; by his energetic management he raised the standard of work for the adult blind throughout America.

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Man's World [translated by Ernest Thomson] (Paris, 1904); Prof. A. Mell, *Encyklopädisches Handbuch des Blindenwesens* (Vienna, 1899). (F. J. C.)

BLISS, CORNELIUS NEWTON (1833–), American merchant and politician, was born at Fall River, Massachusetts, on the 26th of January 1833. He was educated in his native city and in New Orleans, where he early entered his step-father's counting-house. Returning to Massachusetts in 1849, he became a clerk and subsequently a junior partner in a prominent Boston commercial house. Later he removed to New York City to establish a branch of the firm. In 1881 he organized and became president of Bliss, Fabyan & Company, one of the largest wholesale dry-goods houses in the country. A consistent advocate of the protective tariff, he was one of the organizers, and for many years president, of the American Protective Tariff League. In politics an active Republican, he was chairman of the Republican state committee in 1887 and 1888, and contributed much to the success of the Harrison ticket in New York in the latter year. He was treasurer of the Republican national committee from 1892 to 1904, and was secretary of the interior in President McKinley's cabinet from 1897 to 1899.

BLISTER (a word found in many forms in Teutonic languages, cf. Ger. *Blase*; it is ultimately connected with the same root as in "blow," cf. "bladder"), a small vesicle filled with serous fluid raised on the skin by a burn, by rubbing on a hard surface, as on the hand in rowing, or by other injury; the term is also used of a similar condition of the skin caused artificially, as a counter-irritant in cases of inflammation, by the application of mustard, of various kinds of fly (see CANTHARIDES) and of other vesicatories. Similar small swellings, filled with fluid or air, on plants and on the surface of steel or paint, &c., are also called "blisters."

BLIZZARD (origin probably onomatopoeic, cf. "blast," "bluster"), a furious wind driving fine particles of choking, blinding snow whirling in icy clouds. The conditions to which the name was originally given occur with the northerly winds in rear of the cyclones crossing the eastern states of America during winter.

BLOCH, MARK ELIEZER (*c.* 1723–1799), German naturalist, was born at Ansbach, of poor Jewish parents, about 1723. After taking his degree as doctor at Frankfort-on-Oder he established himself as a physician at Berlin. His first scientific work of importance was an essay on intestinal worms, which gained a prize from the Academy of Copenhagen, but he is best known by his important work on fishes (see ICHTHYOLOGY). Bloch was fifty-six when he began to write on ichthyological subjects. To begin at his time of life a work in which he intended not only to give full descriptions of the species known to him from specimens or drawings, but also to illustrate each species in a style truly magnificent for his time, was an undertaking the execution of which most men would have despaired of. Yet [illegible] accomplished not only this task, but even more than he at first contemplated. He died at Carlsbad on the 6th of August 1799.

BLOCK, MAURICE (1816–1901), French statistician, was born in Berlin of Jewish parents on the 18th of February 1816. He studied at Bonn and Giessen, but settled in Paris, becoming naturalized there. In 1844 he entered the French ministry of agriculture, becoming in 1852 one of the heads of the statistical department. He retired in 1862, and thenceforth devoted himself entirely to statistical studies, which have gained for him a wide reputation. He was elected a member of the Académie des Sciences Morales et Politiques in 1880. He died in Paris on the 9th of January 1901. His principal works are: *Dictionnaire de l'administration française* (1856); *Statistique de la France* (1860); *Dictionnaire général de la politique* (1862); *L'Europe politique et sociale* (1869); *Traité théorique et pratique de statistique* (1878); *Les Progrès de l'économie politique depuis Adam Smith* (1890); he also edited from 1856 *L'Annuaire de l'économie politique et de la statistique*, and wrote in German *Die Bevölkerung des französischen Kaiserreichs* (1861); *Die Bevölkerung Spaniens und Portugals* (1861); and *Die Machtstellung der europäischen Staaten* (1862).

BLOCK (from the Fr. *bloc*, and possibly connected with an Old Ger. *Block*, obstruction, cf. "baulk"), a piece of wood. The word is used in various senses, *e.g.* the block upon which people were beheaded, the block or mould upon which a hat is shaped, a pulley-block, a printing-block, &c. From the sense of a solid mass comes the expression, a "block" of houses, *i.e.* a rectangular space covered with houses and bounded by four streets. From the sense of "obstruction" comes a "block" in traffic, a block in any proceedings, and the block system of signalling on railways.

BLOCKADE (Fr. *blocus*, Ger. *Blokade*), a term used in maritime warfare. Originally a blockade by sea was probably nothing more than the equivalent in maritime warfare of a blockade or siege on land in which the army investing the blockaded or besieged place is in actual physical possession of a zone through which it can prevent and forbid ingress and egress. An attempt to cross such a zone without the consent of the investing army would be an act of hostility against the besiegers. A maritime blockade, when it formed part of a siege, would obviously also be a close blockade, being part of the military cordon drawn round the besieged place. Even from the first, however, differences would begin to grow up in the conditions arising out of the operations on land and on sea. Thus whereas conveying merchandise across military lines would be a deliberate act of hostility against the investing force, a neutral ship which had sailed in ignorance of the blockade for the blockaded place might in good faith cross the blockade line without committing a hostile act against the investing force. With the development of recognition of neutral rights the involuntary character of the breach would be taken into account, and notice to neutral states and to approaching vessels would come into use. With the employment in warfare of larger vessels in the place of the more numerous small ones of an earlier age, notice, moreover, would tend to take the place of *de facto* investment, and at a time when communication between governments was still slow and precarious, such notice would sometimes be given as a possible measure of belligerent tactics before the blockade could be actually carried out. Out of these circumstances grew up the abuse of "paper blockades."

The climax was reached in the "Continental Blockade" decreed by Napoleon in 1806, which continued till it was abolished by international agreement in 1812. This blockade forbade all countries under French dominion or allied with France to have any communication with Great Britain. Great Britain replied in 1807 by a similar measure. The first nation to protest against these fictitious blockades was the United States. Already in 1800 John Marshall, secretary of state, wrote to the American minister in Great Britain pointing out objections which have since been universally admitted. In the following interesting passage he said:—

"Ports not effectually blockaded by a force capable of completely investing them have yet been declared in a state of blockade. . . . If the effectiveness of the blockade be dispensed with, then every port of the belligerent powers may at all times be declared in that state, and the commerce of neutrals be thereby subjected to universal capture. But if this principle be strictly adhered to, the capacity to blockade will be limited by the naval force of the belligerent, and, in consequence, the mischief to neutral commerce cannot be very extensive. It is, therefore, of the last importance to neutrals that this principle be maintained unimpaired. I observe that you have pressed this reasoning on the British minister, who replies that an occasional absence of a fleet from a blockaded port ought not to change the state of the place. Whatever force this observation may be entitled to, where that occasional absence has been produced by an accident, as a storm, which for a moment blows off a fleet and forces it from its station, which station it immediately resumes, I am persuaded that where a part of the fleet is applied, though only for a time, to other objects or comes into port, the very principle requiring an effective blockade, which is that the mischief can only be coextensive with the naval force of the belligerent, requires that during such temporary absence the commerce to the neutrals to the place should be free."[1]

[1] John Marshall, secretary of state, to Rufus King, minister to England, 20th of September 1800, Am. State Papers, Class I, For. Rel. II, No. 181, J. B. Moore, *Digest of International Law*, vii. 788.

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